

# Exhibit H

**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF VIRGINIA**

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**UNITED STATES OF AMERICA, ET AL.,  
Plaintiffs,**

v.

**GOOGLE LLC,  
Defendant.**

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Case No. 1:23-cv-00108 (LMB/JFA)

**EXPERT REPORT OF MARK A. ISRAEL**

**January 23, 2024**

**HIGHLY CONFIDENTIAL  
SUBJECT TO PROTECTIVE ORDER**

## HIGHLY CONFIDENTIAL – SUBJECT TO PROTECTIVE ORDER

provide one important example of such an alternative. And beyond open web options, tools similar to exchanges, as well as options like direct deals or ad networks, exist to sell other types of advertising such as in-app advertising, social media advertising, and others. Because exchanges are unquestionably two-sided platforms (as discussed in Section IV.D.4 below), the ability for either side to substitute to those other types of advertising sold through those alternative tools directly constrains open web exchanges including Google’s AdX. If Google were to increase its fee for open web display advertising sold through AdX, all else equal, advertisers could and would shift to buying more in-app advertising, social media advertising, and so on, thus directly costing Google revenue (and similarly for publisher-side substitution).

**1. Even if one artificially narrowed the relevant market to ad exchanges for open web display advertising, Google’s share is less than 45 percent**

270. Even before one considers important competitive alternatives that Plaintiffs’ proposed ad exchange market excludes, the available data indicate that Google’s exchange, AdX, accounts for less than half of indirect open web display advertising impressions.<sup>320</sup> As shown below, shares estimated using three distinct sources of data—DFP data, third-party data, and data from Confiant—all confirm this conclusion.

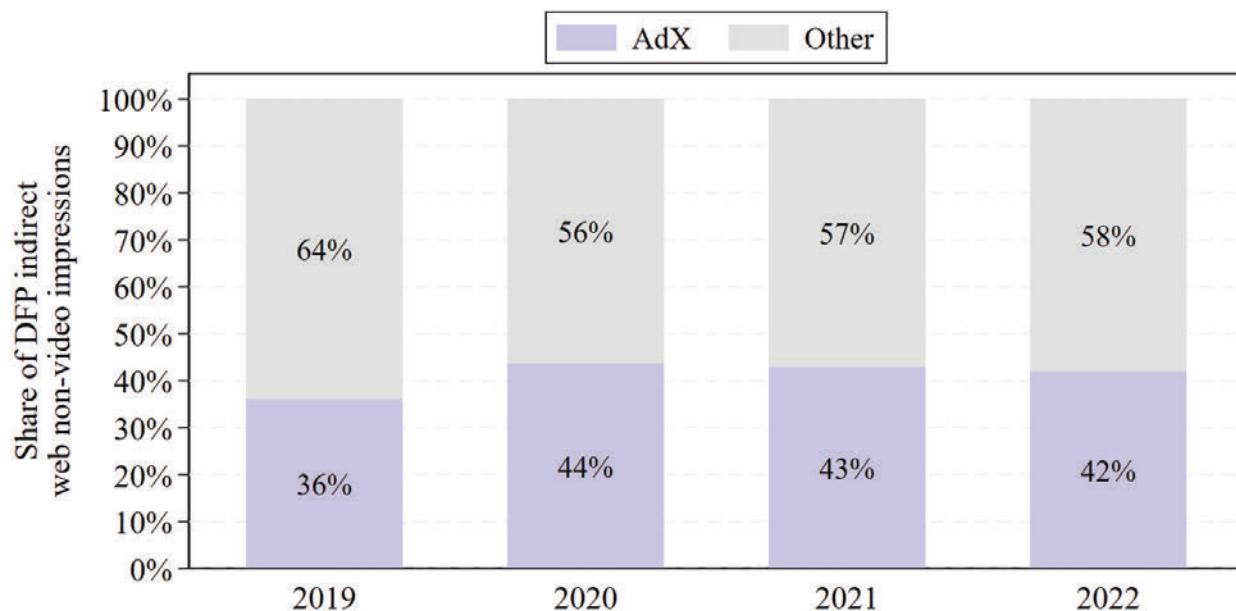
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<sup>320</sup> To estimate Google’s share in a candidate ad exchange market, I followed a similar approach as with the advertiser buying tools discussed above. First, I calculated the share of U.S. DFP web display (non-video) impressions that were accounted for by AdX from 2019 to 2022, excluding directly sold impressions. Second, using the data from third-party ad exchanges produced in this case (along with Google data), I calculated the share of U.S. indirect open web display (non-video) spending accounted for by AdX from 2019 to 2022. Third, using data from Confiant, I calculated the share of U.S. impressions accounted for by AdX from 2019 to 2022.

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271. Figure 40 presents the estimates of AdX's share of U.S. DFP indirect web display (non-video) impressions from 2019 to 2022.<sup>321</sup> As shown in the figure, AdX's share was less than 45 percent in every year. Note that this approach likely overstates AdX's share because it does not include any impressions served by non-Google ad servers.

**Figure 40: AdX Share of U.S. DFP Indirect Web Display (Non-Video) Impressions, 2019-2022**



**Sources:** GOOG-AT-MDL-DATA-000482008 to -2531 (DFP RFP 243 data), GOOG-AT-MDL-DATA-000066537 to -482007, GOOG-AT-MDL-DATA-000508827 to -58886, and GOOG-AT-MDL-DATA-000561536 to -4882 (AdX RFP 243 data), and GOOG-AT-MDL-DATA-000482532 to -6515 (AdSense RFP 243 data)

**Notes:** AdSense backfill accounts for 2-3% of indirect impressions, and is included in "Other".

272. Analysis of available data from third parties yields similar results. Based on Google data and that of its rivals, Figure 41 presents the estimates of AdX's share of U.S. indirect open web display (non-video) spending among ad exchanges from 2019 to 2022.<sup>322</sup> The AdX share

<sup>321</sup> AdX's share of U.S. DFP indirect display (non-video) impressions can be calculated back to 2015 if not requiring that the data are limited to *web* impressions. According to that calculation, AdX's share of U.S. DFP indirect display (non-video) impressions was no higher than 45 percent over the 2015 to 2022 period (see Figure 133 in the appendix).

<sup>322</sup> See Section X.A in the appendix for details. The estimates in Figure 41 reflect an adjustment for the fact that data are not available for all ad exchanges. The specific adjustment is as follows.

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estimates in Figure 41 broadly corroborate those in Figure 40: AdX’s share was no higher than 45 percent over the period and was less than 40 percent in 2022.<sup>323</sup> Other notable competitors include PubMatic, Magnite, Index Exchange, and Xandr (owned by Microsoft), among others. Although these competitors’ shares are smaller than AdX’s share, there is no indication that rival ad exchanges are unable to compete, with numerous rivals competing for and winning impressions.<sup>324</sup> *In sum, even using Plaintiffs’ definition, this is a market with multiple competitors, in which AdX has been successful but is far from having monopoly control over the market.*

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Suppose that the total spend among third-party exchanges with available data is \$X. Suppose further that, within the produced data from advertiser buying tools that report exchange information, those same exchanges account for \$A in spend, compared to \$B in spend for other third-party exchanges. The adjustment then assigns  $(\$B / \$A) \times \$X$  in spend to the other third-party exchanges without available data. Table 22 in the appendix provides the share estimates with and without this adjustment.

<sup>323</sup> Like Prof. Lee, I include AdSense Backfill in these share calculations; the share of AdSense Backfill is small (approximately two percent) and does not affect my conclusions regarding Google’s market power among ad exchanges.

<sup>324</sup> See also MSFT-LIT-0000001326 at p. 8 (indicating a Google “SSP Display and Video Share” of 42.8 percent in 2020, even in the overbroad “Global” geography).

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**Figure 41: AdX Share of U.S. Indirect Open Web Display (Non-Video) Exchange Spending, 2019-2022**



**Sources:** Data from Google, Equativ, Index Exchange, Magnite, OpenX, PubMatic, Sharethrough, Sovrn, Xandr, Yahoo/Verizon Media, and Yieldmo. See Section X.A in the appendix for a complete list of sources.

**Notes:** AdSense backfill accounts for 2% of gross revenue, and is included in "Other".

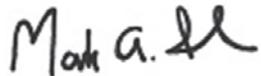
273. As another source regarding Google's share among ad exchanges, I analyze data from the internet security company Confiant, which provides an impression monitoring service to its publisher clients.<sup>325</sup> From 2019 to 2022, Table 6 displays the percentage of Confiant-monitored U.S. impressions accounted for by each exchange present in the data (sorted descending by the 2022 share). As shown in the table, although Google operates the largest exchange, it accounts for less than 30 percent of Confiant-monitored impressions. There are *twenty* other exchanges that account for at least a 1.5 percent share in any of the four years (and more than *thirty* other exchanges that have more than one billion monitored impressions per year). Moreover, the

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<sup>325</sup> As part of that service, Confiant collects data on the exchanges through which publishers' impressions were sold. In 2022, for instance, Confiant monitored more than 400 billion total impressions delivered to the U.S. users of more than 100 publishers (calculated from GOOG-AT-DOJ-DATA-000066769 to -70 (Confiant)).

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840. Second, even if, counterfactually, Google's conduct did lead to higher advertising prices, advertising costs do not generally translate into higher prices for the advertised products. For example, in standard price-setting models, the cost of advertising does not appear in the firm's first-order conditions because it does not vary with output.<sup>1321</sup> In this scenario, an increase in the cost of advertising may cause the firm to reduce its use of advertising, but would not change the price of the product(s) it is selling. Prof. Lee's caution in stating only that retail prices *can* be higher (even under the mistaken premise that advertising costs are higher) is thus warranted.<sup>1322</sup> Prof. Lee presents no economic model or empirical analysis to demonstrate that higher advertising costs, *even if they were to occur*, would be passed on to consumers or to what degree.




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Mark A. Israel

January 23, 2024

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<sup>1321</sup> Hal Varian (2022), “Advertising Costs and Product Prices,” *Journal of Law and Economics*, 65(6): S419-S431. See also *Lee Report*, ¶ 842 (“The extent to which they do so depends on the nature of competition and the characteristics of costs and demand for the product.” (citing Jeremy I. Bulow and Paul Pfleiderer (1983), “A Note on the Effect of Cost Changes on Prices,” *Journal of Political Economy*, 91(1): 182-185; and E. Glen Weyl and Michal Fabinger (2013), “Pass-Through as an Economic Tool: Principles of Incidence under Imperfect Competition,” *Journal of Political Economy*, 121(3): 528-583)).

<sup>1322</sup> *Lee Report*, § VIII.B.2 (“Higher fees charged for open-web display advertising *can* lead to higher retail prices.” (emphasis added)).